DOCUMENT RESUME

ED 149 531 EC 103 660

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TITLE Effects of Early Separation, Interactive Deficits and Experimental Manipulations on Mother-Infant Interaction.
PUB DATE Mar 77
NOTE 9p.; Paper presented at the Symposium on Disturbances of Early Parent Infant Interaction: Symptoms and Origins. Biennial meeting of the Society for Research in Child Development (New Orleans, Louisiana, March, 1977) ; Best copy available

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Early Childhood Education; Infants; *Interaction Process Analysis; Mothers; *Parent Child Relationship; Research Projects

ABSTRACT

Filmed were interactions in a variety of situations of approximately 150 infants from three groups: a preterm respiratory distress syndrome group, a postterm postmature group, and a normal term group. Videotapes were made of interactions involving the infant, mother, father or sibling, a raggedy ann doll, and a mirror. Among findings were that the infant-mother interactions in the risk groups were at least different, if not disturbed; and that risk and nonrisk infants differed in their interactions with fathers, strange mothers, and siblings, but did not differ in their interactions with other infants, their own mirrored image, or with a raggedy ann doll. (SBH)

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Effects of Early Separation, Interactive Deficits and Experimental Manipulations on Mother-Infant Interaction

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Paper to be presented at the Symposium on Disturbances of Early Parent Infant Interaction: Symptoms and Origins. Biennial Meeting of the Society for Research in Child Development, New Orleans, March 1977.

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Effects of Early Separation, Interactive Deficits and Experimental Manipulations on Mother-Infant Interaction

A couple years ago at the SRCD meetings in Denver you perhaps heard a number of presentations on early mother-infant feeding and face-to-face interactions. Films by people like Berry Brazelton, Heidi Als, Laurie Adamson, Ed Tronick, Dan Stern, Ken Kaye & Alan Fogel, for example, presented a very real picture of what goes on during early interactions. From their films I think it was fairly easy to imagine what might go wrong during early interactions.

For example, if a number of face-to-face interactions feature mothers "infantizing" or slowing down, exaggerating and repeating their behaviors, contingently responding by imitating or highlighting the infant's behaviors, taking turns or not interrupting, and respecting the infant's need for an occasional break from the "conversation", and the infant typically looking attentive and sounding content, then the atypical interaction might feature instead a gaze averting, squirming, fussing infant and a mother who appears to be somewhat overactive, intrusive and frustrated. Similarly, if a number of normal-looking feedings feature the infant gazing at the mother while vigorously sucking, and the mother silently watching, reserving her words for the infant's breaks from sucking, then a disturbed feeding interaction might be characterized by a distracted, slow-to-suck, gaze-averting infant and a constantly-coaxing-to-feed mother.

We were concerned that the high-risk groups we were to follow from birth might develop these "everything-going-wrong" type of interactions with their mothers. If they were at risk for developmental delays due to events surrounding their birth, would they also be at risk for interaction disturbances? The specific groups we followed were a preterm respiratory distress syndrome group and a

postterm postmaturity syndrome group. Both groups had received inferior Brazelton interactive process scores, suggesting that as newborns they were not very responsive to a person's face or voice or to inanimate visual and auditory stimuli, nor were they very cuddly or consolable. These infants differed in the nature of their poor scores, the RDS babies being very floppy, rarely irritable, and often sleepy and difficult to arouse. The postterm infant on the other hand was often hyperirritable, hypertonic and hyperaroused, both difficult babies but in different ways. The RDS baby in addition experienced considerable separation due to his intensive care for RDS, so he was at risk on two counts, an inferior Brazelton score and postpartum separation, both of which are thought to correlate with later interaction disturbances.

The questions directing a series of interaction studies with these risk groups were: 1-are their interactions with mothers atypical or disturbed; 2-do neonatal factors like Brazelton scores and postpartum separation predict to their later interactions; 3-are their interactions with other social partners, like a raggedy ann doll, a mirrored image of themselves, other infants, siblings, fathers or strange mothers similarly disturbed; and 4-might disturbed features of the interactions be altered or alleviated by manipulations or exercises which instruct the mother to engage in more of what mothers typically do with their infants, for example, imitation, attention-getting, repeating phrases, turn-taking or non-interrupting and respecting the infant's pauses. Between infant groups, then, we varied the early at-risk factor, and within groups we varied the mother's behaviors as dictated by the manipulations and varied the actual social partners. Although numbers of the interactants' behaviors were coded from the videotapes, we analyzed the more simple attentive and affective (gazing and fussing) behaviors of the infant and the

amount of activity on the part of the infant's interaction partner. This, because we noted in our pilot tapes (and from a number of others' suggestions) that a salient feature of a disturbed infant-mother interaction is an overactive mother and a gaze averting, fussy infant.

Method

Subjects

Interactions of approximately 150 infants were filmed in a variety of the above interaction situations over the past two years. In each of the interaction studies we included at least 12 infants from each of the three groups defined by neonatal status. The preterm RDS infants averaged 1600 grams birthweight, 32 weeks gestation, 5 days on the respirator and 32 days hospitalization. The postterm postmature infants averaged 3600 grams birthweight, 42 weeks gestation and 3 days hospitalization and the term infants 3300 grams birthweight and 40 weeks gestation. The parents were on the average white, middleclass, high-school educated, and 25 years of age, and most of the infants were laterborn.

Procedure

The typical procedure was to invite the infant and parents to return to the hospital at 3½ months post-expected date of delivery (a correction for gestational age differences). There in a video lab (partially furnished like a living room) the interactions were videotaped. The interactants were seated in a curtained alcove, and cameras were positioned approximately 6 feet away. A bottle feeding occurred first to give the dyads a chance to acclimate themselves to the lab, the camera and the heart rate monitors (and as it turned out, to make for very noisey, hiccuping heart rate data). This was followed by a few three-minute face-to-face interactions between infant and mother including a couple experimental interactions. In our initial study our manipulations included asking the mother to try to keep her infant's attention and asking the mother to imitate her infant's behaviors.

Our more recent manipulations entail the mother's repetition of her own phrases and the mother's silencing when the infant looks away from her. These manipulated interactions were counterbalanced for state effects. For all of the face-to-face interactions the infant was positioned in a fairly upright infant seat on a table approximately 18 inches from his interaction partner. Following the mother interactions, a raggedy ann doll and later a mirror were suspended in a stationary position in front of the infant for 3 minutes. This was followed by the infant's interaction with a different social partner, e.g. a father, a sibling, another infant or the other infant's mother. All of these interactions were videotaped using a split screen generator, giving us a picture of the mother's face on one-half and the infant and digital time counter on the other half of the screen. The tapes were later coded by college seniors naive to the experimental design, and practice sessions were held periodically to keep reliabilities above .80.

Analyses and results

Comparisons between and within groups on the interaction behaviors were typically made by multivariate analyses of variance and Hotelling's T Square. Stepwise regression was used to sort out the early and contemporaneous predictors of the interaction behaviors, since we were simultaneously conducting a number of developmental assessments on the same infants.

In an attempt to summarize results from several separate studies, let me report results rather generally. In response to our first question, the infant-mother interactions of the risk groups were at least different if not disturbed. In the face-to-face interactions the preterm and postterm infants gaze averted more and were more fussy, and their mothers were more active than were the normal infant-mother dyads. The preterm RDS males were particularly fussy and gaze averting, and their mothers correspondingly more active. There were no signifi-

cant differences between the postterm and preterm risk groups on these measures suggesting that early separation did not add any appreciable effects. In addition, both of the risk groups engaged in less game-playing than did the normal term infants and mothers.

During feeding interactions the mothers of the risk group infants tended to distribute their stimuli evenly across the feeding situations. That is, they did not quiet when the infants were sucking, while the mothers of the normal term infants tended to reserve their stimulation for the infant's breaks from feeding or sucking. The preterm RDS males appeared to be particularly disorganized in their feeding, and their mothers engaged in a continuous "coaxing-to-feed" type behavior. The most efficient birth predictor of these differences was the à priori interactive process score of the Brazelton neonatal scale.

Risk and non-risk infants also differed in their interactions with fathers, strange mothers and siblings. However, there were no differences between risk and non-risk infants in their interactions with other infants, with their own mirrored image or with a raggedy ann doll. The infants in general spent more time looking at the raggedy ann doll, their mirrored image and other infants than at their older sibs, and more time looking at their older sibs than their parents, and the least time looking at the strange mother. These situations tended to rank in reverse order of activity or stimulation level, the doll being the least stimulating and the strange mother the most active.

The manipulations or experimental interactions were generally effective both at modifying the amount of the mother's activity and the infant's attentiveness. In the first set of manipulations asking the mother to keep her infant's attention dramatically increased the amount of her activity and decreased the amount of her infant's gaze at her. Conversely, asking the mother to imitate her infant's

behaviors diminished her own activity and increased her infant's gaze. There was an inverse relationship between these behaviors, i.e. more maternal activity, less infant gaze. Other manipulations including having the mother repeat her phrases and having her silence during her infant's looks away from her also decreased her activity and increased her infant's attentiveness. Similarly, during a feeding manipulation in which the mother was asked to remain silent during her infant's sucking periods, the infant spent more time looking at her.

Discussion

It would appear, then, that early interactions can be manipulated in such a way as to increase the attentiveness or decrease the gaze aversion and fussiness of the infant by instructing the mother to behave even more like mothers typically behave with their infants. Generally it seems as if the instructions encourage a greater attentiveness on the part of the mother so that she not only becomes less active, but also becomes more sensitive to her infant's signals and more contingently responsive. Her behaviors seem to become more "infantized" and, particularly during her imitation of her infant's behaviors, her own behaviors become more similar to those behaviors already in her infant's repertoire. As such they might be more readily assimilated by the infant. If gaze alternation serves a stimulus monitoring, information processing and arousal modulation function, then one might expect less gaze aversion when the mother's behaviors have been slowed down, simplified and more readily assimilated by the infant. A similar interpretation might be made for the longer looking times at the simpler raggedy ann doll, the mirrored image of the infant and the "more like me" infant peers, namely that they contain less stimulus information and thus require less pausing or looking away to process the information.

It is not clear whether the risk infants might have inferior information processing abilities or whether there are greater infor-

mation processing demands being placed on them by their more active parents. Since there are no differences between the risk and non-risk infants' attentiveness to the doll, to the mirrored image and to other infants, it would seem that the problem is the greater information processing demands deriving from the parents' overactive attemps to engage their relatively unresponsive infants in interaction. The infant's inattentiveness seems to evoke overactivity on the part of the parents which is counterproductive inasmuch as it elicits more of the same inattentiveness.

Observing so much activity on the part of the mothers of the risk infants makes it easy to blame them for the disturbed interactions. It's probably easier to focus on the mothers' behaviors since they are more amenable to change than the infant's. However, the infant's contribution to interaction disturbances becomes much more obvious when the infant is also seen interacting with his father, a strange mother or yourself, the "sensitive" experimenter. It also becomes clear when you see the same mother interacting very differently with her twins, one risk, one non-risk, and when you cover the mother's side of the video monitor screen while viewing a difficult infant. The frustration felt during that exercise highlighted for me the impossibility of assessing maternal sensitivity independently of the infant's responsivity. They are indeed a reciprocal, interdependent system.

Nonetheless, the efficacy of the manipulations or the interaction coaching we have tried suggests that mothers can be shown other ways than their counterproductive overactivity to interact with their relatively unresponsive infants. Several of the mothers of our risk infants are probably just as wanting to learn new tricks as the mothers of Selma Fraiberg's blind infants. Because these risk infants don't have the blindisms or other mannerisms of the obviously handicapped, we perhaps fail to see how difficult they might be for their mothers and other social partners.